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EXAMINER	
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ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,114	WU, EPHREM	
	Examiner	Art Unit	
	David Oveissi	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objection

Note: The phrase **"capable of"** recited in claim 1 lines 5 and 13; in claim 9 line 10, in claim 14 lines 9 and 17; in claim 27 lines 18 , in claim 22, line 11, in claim 28 line 8 and in claim 29 line 7 are not positively recited claim limitations- see MPEP 2111.04. Therefore, the limitations after the phrase are not considered the claims limitations. It is suggested applicant to remove the phrase.

Claim Rejections - 35 USC § 103

1. This application currently names joint inventors. In considering patentability of claims under 35 U.S.C. 103(a), examiner presumes that subject matter of various claims was commonly owned at time any inventions covered rein were made absent any evidence to contrary. Applicant is advised of obligation under 37 CFR 1.56 to point out inventor and invention dates of each claim that was not commonly owned at time a later invention was made in order for examiner to consider applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining scope and contents of prior art.
2. Ascertaining differences between prior art and claims at issue.

3. Resolving level of ordinary skill in pertinent art.
4. Considering objective evidence present in application indicating obviousness or nonobviousness.

3. Following is a quotation of 35 U.S.C. 103(a) which forms basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though invention is not identically disclosed or described as set forth in section 102 of this title, if differences between subject matter sought to be patented and prior art are such that subject matter as a whole would have been obvious at time invention was made to a person having ordinary skill in art to which said subject matter pertains. Patentability shall not be negatived by manner in which invention was made.

Claims **1-29** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Huch et al. (US 6,421,770 B1)** in view of **Upp (4,998,242).**

For claims 1, 9, 14, 20, and **27 Huch** teaches all the subject matter of a method/switch

writing input columns of the input data stream to a common buffer *(see abstract and Fig.5 memory page and column 7 lines 44-45)* according to a write pointer *(see Fig.3 "FIRST READ WRITE POINTER")*; and

in parallel with writing *(See column 4 lines 41-45),* reading from the common buffer to output columns of an output data stream according to a read pointer *(see Fig.3 "FIRST READ WRITE POINTER")*, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common buffer that contains a set of the input columns that are capable of being switched in time to the corresponding output column according to a communication protocol and maintaining an order of input columns within each of the plural tributary payloads.

Huch does not teach of switching, comprising: receiving an input data stream carrying plural tributary payloads from an external input link, each of the plural tributary payloads capable of being switched in space and time. Although, **Huch** teaches about generic data packet *(see column 2 lines 39-42),* **Huch** does not teach the special type of packet such as **tributary payload**.

Furthermore, **Upp** from the same field of endeavor teaches receiving an input data stream carrying plural tributary payloads from an external input link, each of the plural tributary payloads *(see abstract).* Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to combine the teaching of **Upp** with teachings of **Huch** to design a high performance space-time switch. **Huch** memory architecture is a generic module that can be used in a switch. Furthermore, the tributary payload, which has a specific data format, can be modified to a generic data stream to be written to a memory module and read from the memory module. This is possible because the tributary payload can be decomposed into different types of tributary to address different traffic requirements. The motivations for this combination is the increasing demand for both memory size and read and write performances which are provided by the **Huch** memory architecture.

For claims 2-6 and 15-19 Huch teaches all the subject matter of the method/switch, wherein the limited portion of the buffer depends on a corresponding location of the write pointer in the buffer, for each output column the corresponding location of the write pointer and the limited portion containing the set of input columns for reading being mutually exclusive *(see column 4 lines 29-32).* However, **Huch** does not teach about the type of

payload (tributary); the method, wherein each of the plural tributary payloads is characterized by an arbitrary type; the method, wherein each of the plural tributary payloads is characterized by a type selected from the group consisting of **VT1.5, VT2, VT3,** and **VT4**; the method, wherein each of the plural tributary payloads is characterized by the same type; and the method, wherein the communication protocol is **SONET**. On the other **Upp** teaches tributary payload subject matter and its variations *(see abstract "SONET formatted signal being disassembled into its virtual tributary (VT)" payload).* **Upp** also teaches about **VT1.5, VT2, VT3,** and **VT4** types. *(See Fig. 7* ***VT1.5, VT2, VT3, and VT6, VT4 is reserved).*** **Upp** also teaches that **SONET** signals are composed of a number of **VTs**, which may be the same, or allowed mix of sizes *(see column 2 lines 26-30).* Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use tributary payload of **Upp** in the memory architecture of **Huch** to provide a space-time switch that caters to the **SONET** tributary payload. The **SONET** tributary payload is of standard format (see **Upp's** Fig.1 for **SONET** payload format). The **SONET** payload can be dissembled into different tributary ***(ex. VT1.5, VT2, VT3, VT4, VT6).*** Therefore, it is possible by to disassemble the **SONET** payload based on a desired traffic. Once the **SONET** payload is decomposed into desired triburty, it can then be used in the memory architecture of **Huch**. The motivation for this combination is to respond to the increasing demand for both memory size and read and write performance, which are provided by the **Huch** memory architecture. Also, this combination allows meeting the variation of incoming and outgoing traffic payloads.

For claim **7 Upp** teaches a method, wherein each of the plural tributary payloads comprise an ordered set of input columns that are interleaved within a payload of the input data stream *(see abstract, column 2 lines 18-36, column 8 line 13).*

For claims **8** and **21 Upp** teaches a method, wherein the input data stream is a frame having columns and rows and the common buffer having length substantially equal to a frame row *(see Fig.1).*

For claim **10 Upp** teaches a method wherein the frame is an STS-N frame and the common buffer has a length substantially equal to 90N bytes *(see column 3 line 32, and column 32 lines 1-17)* .

For claim **11 Upp** teaches a method wherein the input data stream is a frame having columns and rows and the common buffer having a length less than a frame row *(see column 3 line 32, and column 32 lines 1-17).*

For claims **12** and **28 Huch** teaches a method further comprising:

writing a first set of the input columns of the frame row into the common buffer sequentially from a beginning location to an end location of the buffer *(see Fig.4 "end")*; and

further writing a second set of the input columns of the frame row sequentially from an intermediate location to an end location of the buffer*(see Fig.4 "end")*;

For claim **13 Upp** teaches a method wherein the frame is an STS-N frame and the buffer has a length substantially equal to 62N bytes *(see column 3 line 32, and column 32 lines 1-17)*.

For claim **22 Huch** teaches a switch wherein:

the write controller causes the input columns of the frame row to be written into the common buffer sequentially from a beginning location to an end location of the buffer according to the write pointer *(see Figure 2. "CPU" column 1 line 13 "memory management", column 2 line 62 and column 5 line 51);*

the read controller, in parallel with the write controller, causes the input columns from the common buffer to be read to the output columns of the output data stream, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common buffer that contains a set of the input columns that are *(see Figure 2. "CPU" column 1 line 13 "memory management", column 2 line 62 and column 5 line 51)* capable of being switched in time to the corresponding output column and maintaining the order of the input columns within each of the plural tributary payloads; and

the limited portion is a continuous range of buffer locations that depends on a corresponding location of the write pointer in the common buffer *(see column 4 lines 61-67)*.

For claim **23 UPP** teaches a switch wherein the frame is an STS-N frame and the buffer has a length substantially equal to 90N bytes *(see column 3 line 32, and column 32 lines 1-17)*.

For claim **24 Huch** teaches a switch wherein the input data stream is a frame having columns and rows and the common buffer having a length less than a frame row *(see column 3 line 32, and column 32 lines 1-17)*.

For claims **25** and **29 Huch** teaches a switch wherein:

the write controller causes a first set of the input columns of the frame row to be written into the common buffer sequentially from a beginning location to an end location of the buffer*(see Fig. 2 "CPU")*; and

the write controller further causes a second set of the input columns of the frame row to be written sequentially from an intermediate location to an end location of the common buffer*(see Fig. 2 "CPU")*.

For claim **26 Huch** teaches a switch wherein the frame is an STS-N frame and the common buffer has a length substantially equal to 62N bytes*(see column 3 line 32, and column 32 lines 1-17)*.

Response to Argument

Applicant's arguments filed October 29 2007 have been fully considered but they are not persuasive. Applicant argued that the position taken in the office action regarding the phrase "capable of" recited in the claims ... are not positively recited claim limitations. Therefore, the limitations after the phrase are not considered the claims limitations does not appear to be supported by the USPTO's own patent database. The examiner respectfully disagrees. MPEP paragraph 2111.04 deals with this issue. Applicant has amended claims1, 14, and 27 by and maintaining an order of input columns within each of the plural tributary payloads which appears after the phrase capable of therefore according the MPEP 2111.04 is not considered claim limitation.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Takada et al. (US 7,075,938 B1), Bansal et al. (US 6,650,637 B1), Eom et al. (5,914952), and Sailesh Kumar, Raja Venkatesh, Joji Philip, Sunil Shukla, "Ultra High Speed Packet Buffering using "parallel packet Buffer", Proceeding of IEEE International conference on Networking (ICN 2002), August 21 2002**

6. Any inquiry concerning this communication or earlier communications from examiner should be directed to David Oveissi whose telephone number is (571) 270-3127. Examiner can normally be reached on Monday to Friday 8:00 AM to 5:00 PM EST.

If attempts to reach examiner by telephone are unsuccessful, examiner's supervisor, Backer Firmin can be reached on (571) 272-6703. fax phone number for organization where this application or proceeding is assigned is 571-273-8300.

Information regarding status of an application may be obtained from Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to Private PAIR system, contact Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

D.O

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